

20 SPORT SPEC CLASS

20.1 SPORT SPEC CLASS COMPETITION

Intended to promote interest in personal watercraft competition with a limited number of modifications, and to enable individuals to become active competitors with a relatively modest investment. Watercraft that are eligible to compete in this class are: Kawasaki X2 (Pre 05); Kawasaki X2 (05-07); Polaris Hurricane; Sea Doo HX and Yamaha Waveblaster 701. Watercraft competing in this class must conform to the specifications which follow. These rules are specifically outlined for each individual model to promote close competition..

** For 2011, the Kawasaki Gen 1 - X2 (pre 2005) will have two options:

Option 1) Kawasaki Gen 1 - X2 (old style, pre 2005) are allowed to update to 750 or 800 Kawasaki engines and electronics; and are to follow IJSBA Open class rules. (810cc limit)

OR

Option 2) Kawasaki Gen 1 - X2 (old style, pre 2005) may upgrade to a Kawasaki 900 or 1100 motor, exhaust, electronics and carbs. Carburetors jets, needles/seats may be replace. Aftermarket flame arrestors and adaptors are allowed. REMAINING motor and electronics must remain OEM as from factory. All other modifications are to follow IJSBA Open Class rules

20.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the changes allow for no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

NOTE: When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition

20.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.

20.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.

20.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

20.2 HULL

20.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

20.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Hull, bulkhead and deck may be internally reinforced.

Fasteners may be installed through the hull, bulkhead and deck for the purposes of securing components to interior surfaces, provided a hazard is not created. Bulkhead may be cut for exhaust or electrical routing. Fire extinguisher, fuel petcock and choke holes may be filled or capped.

20.2.3 All watercraft may be equipped with a maximum of four sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). length shall be limited to 1,524 mm (60 in) in a single or two sponson configuration (per side). The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition. Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50 in.). No part of the sponsons shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.)

The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

20.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.

20.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.). Pump shoe may be aftermarket but may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area of the hull.

- 20.2.6 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planning surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planning surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 20.2.7 Kawasaki Generation 1 X2 (pre-2005) may add front hull fills providing these fills do not exceed 36 inches in length measured from the front most surface of the hull towards the rear of the hull. Replacement bumpers may be used provided a hazard is not created
- 20.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 20.2.9 Battery box may be relocated.
- 20.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- 20.2.11 Seat height may be changed and/or covered but must utilize OEM stock base. Base may have holes providing they do not add additional airflow to engine compartment. Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the area above the hull bond flange may be polished, shot peened or painted.
- 20.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 20.2.13 Engine compartment ventilation tubes may be modified, aftermarket, relocated on the original equipment ducting, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed. Polaris Hurricane hood/mirror cowling may be replace providing it does not create additional airflow to engine compartment.

ENGINE

- 20.2.14 All spec eligible Engines may be bored a MAX of 1mm. Yamaha Waveblaster may upgrade to 701 62T style cylinders. Pre-1996 Yamaha Waveblaster may update to 1996 and newer engine components.

- 20.2.15 Replacement piston assemblies may be used provided the original port timing, dome profile, skirt length and shape and type of material are not changed. Replacement piston assemblies must weigh within $\pm 5.00\%$ of original equipment. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.) Cylinders may be machined to accept girdle system cylinder heads.
- 20.2.16 Replacement starter motor and bendix may be used. Replacement engine mounts may be used.
- 20.2.17 Crankshaft may be rebuilt using replacement counterweights, crank pins, bearings and connecting rods.
- 20.2.18 Counterweights, crank pins and connecting rods made of non-ferrous metals are not allowed. Stroke and rod length may not be changed. Counterweights on non-rebuildable style crankshafts may be machined to accept a press-through crank pin. Replacement bearings must maintain their original type and dimensions.
- 20.2.19 Replacement counterweights must resemble the original part (i.e., holes and/or pockets not existing on the original part may not be on the replacement part). Total weight of the crank- shaft assembly must be within $\pm 5.00\%$ of original equipment. Crankpins may be welded and/or keyed to the counterweights.
- 20.2.20 Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. Crankcase drain and cable may be removed and plugged. No other modifications or repairs are allowed. External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 20.2.21 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
- 20.2.22 Kawasaki, Polaris and Yamaha Cylinder heads and gasket may be modified or aftermarket providing they do NOT exceed 190lbs of compression. Kawasaki, Polaris and Yamaha aftermarket or OEM head domes must not go below .040 head squish clearance at any point. Sea Doo HX heads may be modified but may not go below .051 head squish clearance and may not exceed 175lbs of compression. Drop down style domes are not allowed on any model.
- 20.2.23 Kawasaki, Polaris and Yamaha Exhaust manifold, head pipe, expansion chamber, gaskets and all hoses between expansion chamber and exhaust exit may be modified/altered or aftermarket. Only exhausts originally manufactured as a wet style systems will be allowed. Exhausts originally intended as dry type systems may NOT be used. No water jacked chambers are allowed. Exhaust exit may be relocated to the rear of the hull. Kawasaki, Yamaha and Polaris waterbox may be relocated and aftermarket. SeaDoo HX may update /backdate to either year OEM factory HX waterbox. SeaDoo HX may plug water fittings on OEM waterbox. No spray bars may be added to HX waterbox.
- 20.2.24 Flow control valves may be used. No tuned portion of the exhaust shall protrude outside the hull. Through-hull exhaust outlet flap may be removed.

Electronic water injection is NOT allowed on any model. Sea Doo HX must retain unmodified stock HX exhaust system and waterbox. Sea Doo HX may not use stinger sprayers or water injectors. Sea Doo HX must use stock from factory water routing, no additional water bypasses will be allowed.

- 20.2.25 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used. Base gasket must remain OEM thickness for each individual model or as outlined in service manual.
 - 2) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
 - 3) Sea Doo HX may upgrade to larger bolts or studs for the exhaust system.

20.3 AIR/FUEL DELIVERY

- 20.3.1 Polaris Hurricane and Yamaha Waveblaster Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Sea Doo HX must retain stock carbs from that model; but may be rejettted and de-choked. Aftermarket primer may be used.
- 20.3.2 Polaris Hurricane, Kawasaki X2 (05-07) and Yamaha Blaster Intake manifold assembly may be modified or aftermarket. SeaDoo HX must retain OEM intake manifold from factory. SeaDoo HX may not adjust timing by rotating stator plate; lines must line up as from factory. Aftermarket crankcase-pressure-operated fuel pumps may be used. Additional carburetor pulse line fittings may be installed on the crankcase.
- 20.3.3 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 20.3.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve will not be restricted to OEM upon approval by IJSBA. The fuel pickup, fuel filter and fuel petcock assembly may be removed and/or after-market parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.

- 20.3.5 The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.
- 20.3.6 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards will be allowed. Intake silencer may be removed. Reed valve assemblies may be modified or aftermarket. Reed spacers may be added. Sea Doo HX Rotary valve must remain OEM stock from factory and retain the factory rotary timing.

20.4 IGNITION AND ELECTRONICS

- 20.4.1 RPM limiter function may be modified. Polaris and Yamaha model CDI units may be modified or aftermarket provided ignition timing is not manually adjustable. Kawasaki Gen 2 (2005- 2007) model CDI may be modified or aftermarket AND programmable. ALL original equipment charging systems must be used. Timing may not be advanced at the stator plate - ALL models must line up stator with factory set mark on cases. Kawasaki X2 may use ignition jumper for heat sensor. Flywheels must be OEM stock and unmodified as provided from the factory. Coils, plug wires and plug caps may be aftermarket. No other ignition system modifications will be allowed.
- 20.4.2 Replacement batteries are allowed but must fit into the original equipment battery box and securely fastened.
- 20.4.3 Engine temperature sensor may be disconnected and/or removed.

20.5 DRIVELINE

- 20.5.1 Stator vane assembly must remain OEM stock from factory. SeaDoo HX may use OEM plastic pump housing provided it retains the small diameter hub and the same amount of veins. Polaris Hurricane my update to the factory superseded Polaris 6 vein pump. Pump mounting plate and/or pump shoe may be modified or aftermarket. Titanium driveshafts are not allowed. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment, whether using spacers or extended nozzles. Aftermarket nozzle-trim systems may be used. Kawasaki, Polaris and Yamaha models may add additional cooling fitting. Visibility spout must be removed or plugged. Silicone adhesive sealant or alike may be used in addition to original equipment seal to seal pump inlet. Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump. SeaDoo HX must retain OEM unmodified 720 flywheel. Kawasaki X2 may use aftermarket pump cones.
- 20.5.2 SeaDoo HX may use older style carrier assembly with grease fitting.